ABSTRACT OF THE DISCLOSURE

A thermal inorganic resist for lithographic processes and image creation is disclosed. In one embodiment an In layer of 15 nm is deposited, followed by a Bi layer of 15 nm. Upon exposure to a optical light pulse of sufficient intensity the optical absorption heats the film above the eutectic melting point (110°C for BiIn) and the resist forms an alloy in the exposed area, replicating patterns projected on its surface. Optical characteristics of the alloyed layers are in these resists typically different from the unexposed layers creating a visual image of the exposure pattern before the development etch aiding in exposure control. The resist layer is then stripped, leaving the pattern layer on the substrate. In resists showing significant optical differences (such as BiIn) after exposure this same material can be used to create images for data storage, and, when transparent, photomasks for optical lithography.